



Low Carbon Development, 100% Renewable Energy and Poverty Reduction in Bangladesh

Study Tour, April 2016, Bangladesh





- 2021 marks the 50th anniversary of independence.
- In recognition of the long-term development challenges, the Government under the leadership of Prime Minister Sheikh Hasina adopted the Vision 2021.





What is Bangladesh vision for 2021?





- Ensuring broad-based growth and food security,
- Addressing globalization and regional cooperation
- **Providing energy security for development and welfare**
- Building a sound infrastructure
- Ensuring effective governance
- Mitigating the impacts of climate change
- Creating a caring society
- Promoting innovation under a digital Bangladesh





Providing energy security for development and welfare





- In 2001, when the Plan was drafted, **per capita consumption of energy** in Bangladesh was on an **average 160 kgoe** (kilogram oil equivalent) compared with 640 kgoe in Asia.
- **Only 30% of the 162 million people of Bangladesh had access to electricity.** Supply was hardly reliable. And overall **demand for electricity was rising by about 10 per cent annually.**
- Vision 2021 aims to **develop an integrated and developed energy sector** in Bangladesh that will be the **key driver of a sustainable local and national economy**, while attaining global competitiveness in all sectors by 2021.



Vision 2021 targets for electricity production





- Electricity generation in the country by 2013: 11,959 MW
- Electricity generation in the country by 2015: 15,357 MW
- Electricity generation in the country by 2021: 20,000 MW
- **Affordable and Reliable Electricity for all by 2021**





Strategies for achieving Affordable and Reliable Electricity for all by 2021





- Diversify the use of primary fuels;
- **To increase power generation through renewable sources, such as solar, wind, small hydro;**
- To finance power generation projects through Public–Private Partnerships;
- To increase sector efficiency
- To adjust price with a view to reducing burden of budgetary subsidy while ensuring affordability to consumers.
- To raise efficiency of power sector to contain cost and as well as technical and operational.



Why betting on renewables?





- Finite nature of non-renewable energy → **Abundant, infinite nature of Renewable Energy**, critical to ensure energy security
- Grid access is extremely limited in much of Bangladesh → **Renewable Energy is a cost effective**, pragmatic solution for providing electricity to disconnected areas.
- High dependence on the importation of energy → Renewable energy deployment would **reduce dependence** and **positively impact on Bangladesh balance of payments and the overall economy.**
- Renewable energy is more **environmentally friendly.**



Bangladesh Renewable Energy Policy





RE Objectives for Bangladesh (1)

- **Harness the potential of renewable energy resources** and dissemination of renewable energy technologies in rural, peri-urban and urban areas;
- **Enable, encourage and facilitate** both public and private sector **investment in renewable** energy projects;
- **Develop sustainable energy supplies** to substitute indigenous non-renewable energy supplies;
- **Scale up contributions of renewable energy** to electricity production;





RE Objectives for Bangladesh (2)

- Scale up contributions of renewable energy both to electricity and to heat energy;
- **Promote** appropriate, efficient and environment friendly **use of renewable energy**;
- **Train; facilitate the use of renewable energy** at every level of energy usage.
- **Create enabling environment and legal support** to encourage the use of renewable energy.
- **Promote development of local technology in the field of renewable energy.**



RE Goals for Bangladesh

- The Bangladeshi Government has set a target to have 3,168 MW of renewable energy capacity installed by 2021.
 - 5% share of RE in electricity generation by the end 2015
 - 10% by 2021.
- Focus on solar and wind technology
 - Addition of 1,740 MW of solar power by 2021
 - Addition 1,370 MW of wind energy capacity by 2021,
 - The remaining balance (58 MW) to be made up of biomass-based power generation technologies (47 MW); biogas (7 MW) and mini-hydro power projects (4 MW).
- About 1,055 MW will be added through state-owned companies. The remaining 2113 MW will be installed by private sector companies.



RE Goal for Bangladesh rural areas

- Providing 1 million rural consumers with solar home systems by 2012
 - The continued decline in solar module costs, the high cost of transmission and distribution infrastructure due to the many rivers that crisscross the country, and the persistently high costs of diesel for power generation and of other fossil fuels used for lighting such as kerosene, has made Solar Home Systems the most competitive tool to increase electricity access in rural Bangladesh.
- 100% renewable first-time electricity for 6 million households by 2017
- 100% electricity access to rural areas by 2021





Track progress for RE deployment in Bangladesh

- In October 2015, the **country's power generation** from renewable energy sources reached **176 MW**, of which:
 - 150 MW is being generated from solar home system (SHS)
 - 16 MW are coming from rooftop solar
 - 1.614 MW from solar mini-grid
 - 1.562 MW from solar irrigation
 - 2 MW from wind power
 - 5 MW from biogas
 - 1 MW from biomass





Track progress for RE deployment in Bangladesh rural areas

- As of end of 2014, **100% renewable first-time electricity with solar and batteries reached 3.5 million households** (approximately 15 million people).
- Approximately **40,000 rural families receives a new system every month**. Most systems range from 10W to 135W and cost less than \$1,000.





Renewable Energy Institutional Arrangements





- An institution, **Sustainable Energy Development Agency (SEDA)**, has been **established as a focal point** for sustainable energy development and promotion, ‘sustainable energy’ comprising renewable energy and energy efficiency.
- **SEDA Board will comprise of representatives of stakeholders** including business community, academics and/or representative from Bangladesh Solar Energy Society, NGOs, financial institutions and implementing agencies.





Renewable Energy Resource, Technology and Program Development





- SEDA in conjunction with the Power Division, Ministry of Power, Energy & Mineral Resources is responsible for **determining the priorities for renewable energy technology development and program implementation.**
- SEDA shall **support capacity building, technology development, and market development** sufficient to boost the share of electricity generated from renewable energy technologies.
- **Electricity generated from renewable energy projects, both in public and private sectors may be purchased by power utilities or any consumer through mutual agreement.**



Renewable Energy Investment and Fiscal Incentives





- **Renewable Energy equipment** and related raw materials in producing renewable energy equipment will be **exempted from charging 15% VAT**.
- In addition to **commercial lending**, a **network of micro-credit support system** will be established to provide financial support for purchases of renewable energy equipment.
- **Subsidies provision** to utilities for installation of solar, wind, biomass or any other renewable energy project.
- **Incentive tariff** considered for electricity generated from RE sources which may be 10% higher than the highest purchase price of electricity by the utility from private generators
- **Lending procedure for RE projects will be simplified** and strengthened.





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